

ACTIVE PIXEL SENSOR ARRAY WITH SIMPLE FLOATING GATE PIXELS

Abstract of the Disclosure:

An imaging device formed as a monolithic complementary metal oxide semiconductor integrated circuit in an industry standard complementary metal oxide semiconductor process, the integrated circuit including a focal plane array of pixel cells, each one of the cells including a photogate overlying the substrate for accumulating photo-generated charge in an underlying portion of the substrate and a charge coupled device section formed on the substrate adjacent the photogate having a sensing node and at least one charge coupled device stage for transferring charge from the underlying portion of the substrate to the sensing node.

There is also a readout circuit, part of which can be disposed at the bottom of each column of cells and be common to all the cells in the column. A Simple Floating Gate (SFG) pixel structure could also be employed in the imager to provide a non-destructive readout and smaller pixel sizes.

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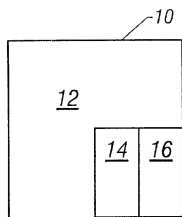


FIG. 1

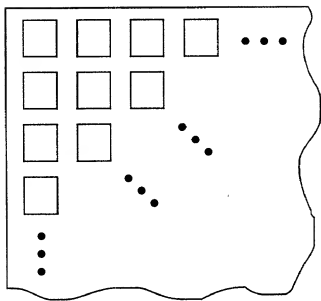
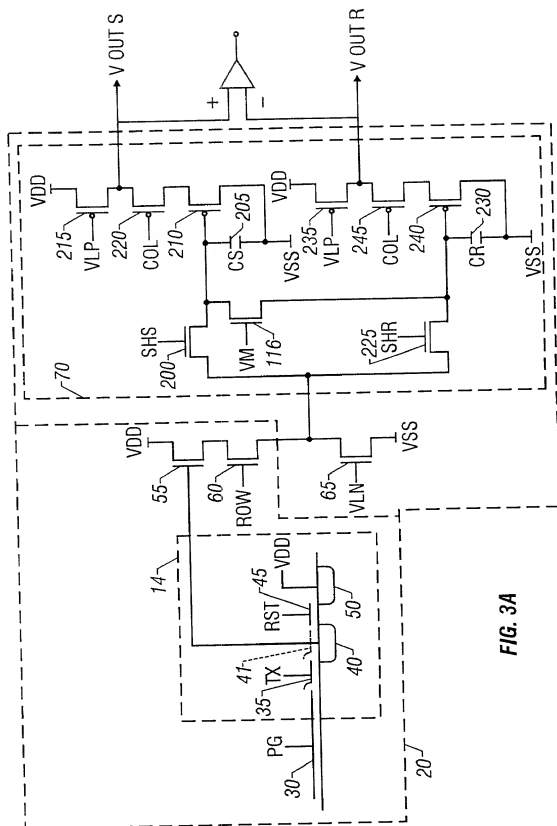
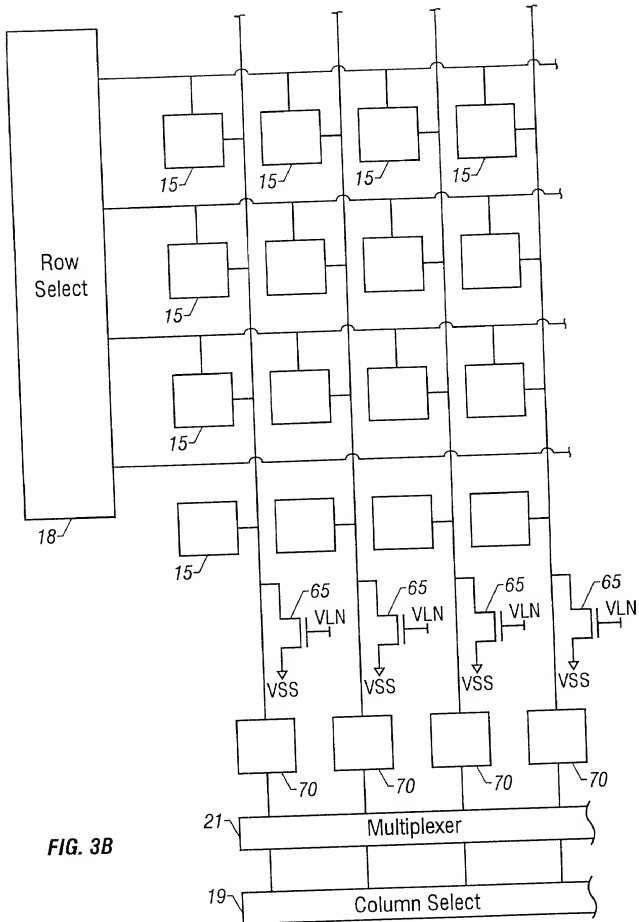


FIG. 2





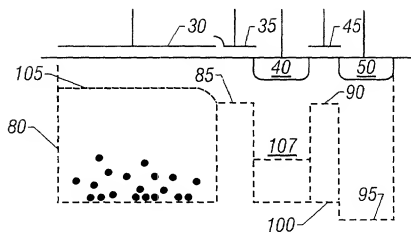


FIG. 4

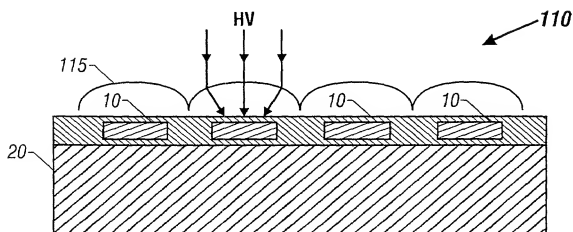


FIG. 5

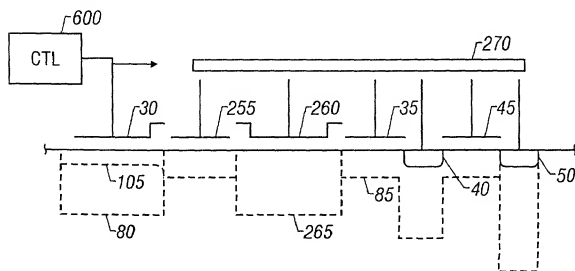


FIG. 6

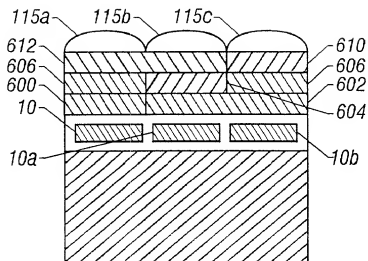


FIG. 6A

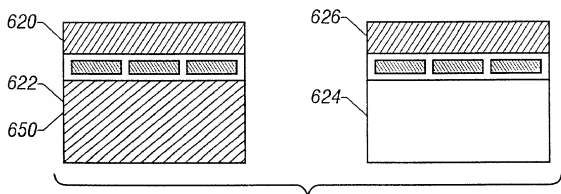


FIG. 6B

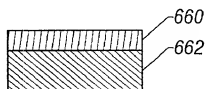


FIG. 6C

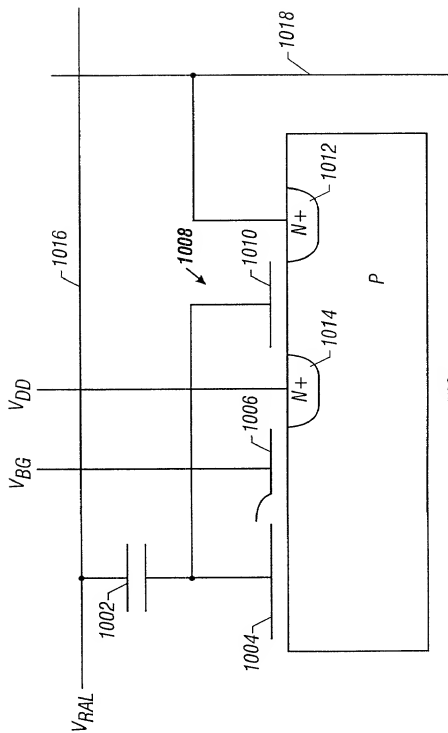


FIG. 7

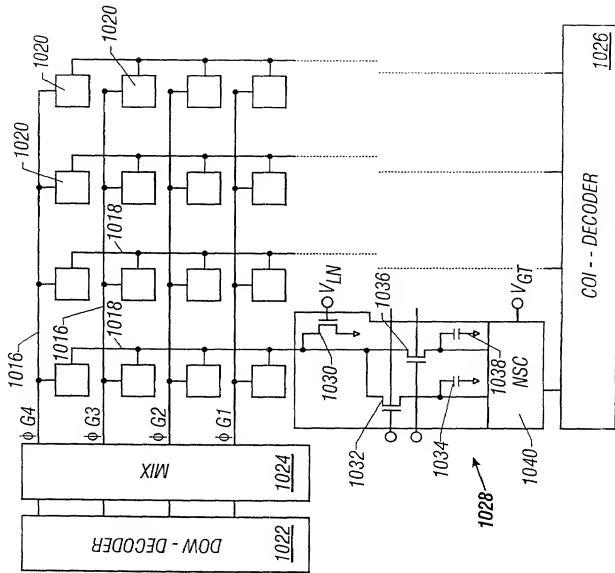
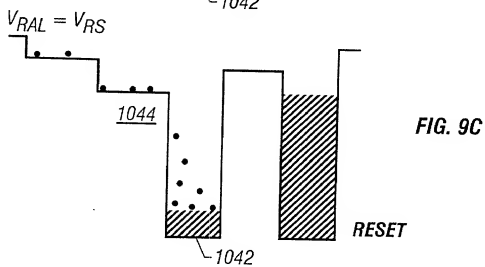
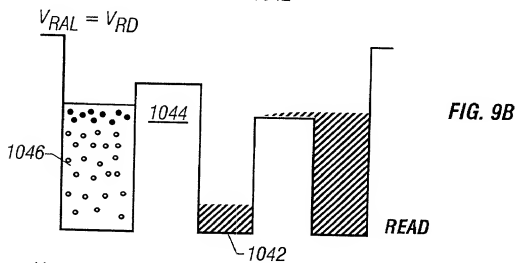
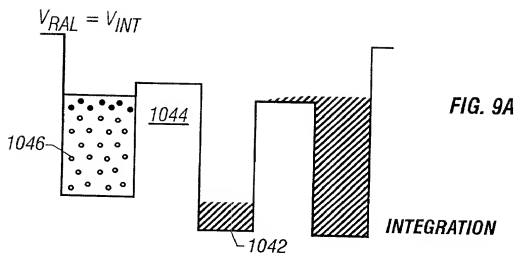


FIG. 8





Oath/Declaration, Small Entity, and Power of Attorney

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COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **ACTIVE PIXEL SENSOR ARRAY WITH SIMPLE FLOATING GATE PIXELS**, the specification of which

☐ is attached hereto.

☒ was filed on January 22, 1997 as Application Serial No. 08/785,931 and was amended on _____

☐ was described and claimed in PCT International Application No. _____
filed on _____ and as amended under

PCT Article 19 on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information I know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose all information I know to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

U.S. SERIAL NO.	FILING DATE	STATUS
<u>08/558,521</u>	<u>11/16/95</u>	<input checked="" type="checkbox"/> Pending <input type="checkbox"/> Issued <input type="checkbox"/> Abandoned
<u>08/188,032</u>	<u>01/28/94</u>	<input checked="" type="checkbox"/> Pending <input type="checkbox"/> Issued <input type="checkbox"/> Abandoned

I hereby claim the benefit under Title 35, United States Code, §119(e)(1) of any United States provisional application(s) listed below:

<u>60/010,305</u>	<u>01/22/96</u>	<input checked="" type="checkbox"/> Pending <input type="checkbox"/> Issued <input type="checkbox"/> Abandoned
<u>60/013,700</u>	<u>03/20/96</u>	<input checked="" type="checkbox"/> Pending <input type="checkbox"/> Issued <input type="checkbox"/> Abandoned

I hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Scott C. Harris, Reg. No. 32,030; William J. Egan, III, Reg. No. 28,411; David L. Feigenbaum, Reg. No. 30,378; John F. Land, Reg. No. 29,554; Ralph A. Mittelberger, Reg. No. 33,195; Hans R. Troesch, Reg. No. 36,950 and John R. Wetherell, Jr., Reg. No. 31,678.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both,

COMBINED DECLARATION AND POWER OF ATTORNEY BY CONTINUED

under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

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